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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,038	09/22/2003	Akinori Furuya	034620-105	1798

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THELEN REID & PRIEST LLP
P.O. BOX 640640
SAN JOSE, CA 95164-0640

EXAMINER	
BERNATZ, KEVIN M	

ART UNIT	PAPER NUMBER
1773	

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/669,038	FURUYA ET AL.	
	Examiner	Art Unit	
	Kevin M Bernatz	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *23,24 and 26* is/are objected to.

8)☒ Claim(s) *19-30* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/529,919.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/22/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Preliminary amendments to the specification, cancellation of claims 1 – 18, and addition of new claims 19 - 30, filed on September 22, 2003 and June 14, 2004, have been entered in the above-identified application.

Examiner's Comments

2. Regarding the limitation(s) "loads" in claim 28, the Examiner has given the term(s) the broadest reasonable interpretation(s) consistent with the written description in applicants' specification as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, as noted in parent application 09/529,919, the Examiner has interpreted the term "load" as any substance that influences the refractive index of the recording layer and includes protective and dielectric layers.

Specification

3. Applicants are requested to update the status of parent application 09/529,919, now U.S. Patent No. 6,759,137.

Claim Objections

4. Claims 23, 24 and 26 are objected to because of the following informalities: applicants are requested to place a space between the second number and "nm" for better readability. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 26 and 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites the limitation "said recording layer", yet in claim 19 applicants refer to two layers as a "recording layer". Specifically, claim 19 recites a "recording layer" that comprises both a garnet ferrite layer and an underlayer, as well as a "garnet ferrite recording layer" (emphasis added). It is unclear which layer applicants are attempting to further limit in claim 26. For purposes of evaluating the prior art, the Examiner has interpreted the claim limitation to be directed to either of the single garnet ferrite layer or the combined garnet ferrite + underlayer structure (i.e.. if the prior art meets either thickness it is deemed to read on the claimed limitation).

Claim 30 recites the limitation "said transparent layer" in line 2. There is insufficient antecedent basis for this limitation in the claim. The Examiner notes that it

appears that claim 30 should depend from claim 29, not claim 19, and for purposes of evaluating the prior art, the Examiner has interpreted the dependency as such.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 19 – 24 and 27 – 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Machida (U.S. Patent No. 4,883,710).

Regarding claim 19, Machida discloses a magneto-optical (MO) recording medium (*Title*) having a recording layer (*Figure 4, element 3*) and a reflective layer (*element 21*) on a substrate (*element 11*), the recording layer comprising a garnet ferrite recording layer (*element 17 and col. 4, lines 34 – 47*) and at least one underlayer for the garnet ferrite recording layer (*element 15*) meeting applicants' claimed Markush limitations (*col. 4, lines 34 – 47*) wherein the underlayer is formed on the substrate or the reflective layer (*Figures 4 and 5*), the garnet ferrite recording layer is formed adjacent to the underlayer (*ibid*).

Regarding the limitation(s) "after the formation of the underlayer" and "the recording layer is heat-treated ... by the tensile stress provided from the underlayer", the Examiner notes that these limitation(s) are/(is a) process limitation(s) and is/are not further limiting in terms of the structure resulting from the claimed process. Specifically,

in a product claim, as long as the prior art product meets the claimed structural limitations, the method by which the product is formed is not germane to the determination of patentability of the product unless an unobvious difference can be shown to result from the claimed process limitations. In the instant case, as long as the recording layer is structurally located above the underlayer, then the disclosed product meets the limitation "after the formation of the underlayer".

The limitation "the recording layer is heat-treated ... provided from the underlayer" is not deemed to result in a difference in *structure* other than "reducing the internal compressive stress of the garnet ferrite layer", but since no magnitude is claimed, the Examiner notes that any value of the compressive stress would read on the above limitation. Furthermore, the Examiner notes that Machida discloses the deposition temperatures of the subsequent layers being 400 °C (*col. 16, lines 5 – 15*) and there is no evidence that a structural difference would result between applicants' claimed and the disclosed process limitations used in the Machida invention.

Regarding claims 20 and 27, Machida discloses tracks and grooves meeting applicants' claimed structural limitations (*Figure 10; col. 11, lines 40 – 51; and col. 12, lines 10 – 15*).

Regarding claims 21 and 22, Machida discloses reflecting layer meeting applicants' claimed structural limitations (*element 21 in Figures 4 and 5*).

Regarding claims 23 and 24, Machida discloses thickness values coextensive with applicants' claimed numerical ranges (*col. 6, lines 6 – 9; col. 8, lines 32 – 35; and col. 10, lines 21 – 25*).

Regarding claim 28, Machida discloses "loads" meeting applicants' claimed structural limitations (*Figures 7 and 10 and col. 11, lines 40 – 43*).

Regarding claims 29 and 30, Machida discloses heat insulating layers (i.e. applicants' "transparent layers") (*Figures – element 19; col. 11, lines 1 - 21*) meeting applicants' claimed structural limitations. While Machida does not explicitly disclose that the layer is transparent, the Examiner notes that the recited dielectric materials are known to be transparent and Machida implicitly states that they are transparent by noting that the laser beam can be applied to the substrate side if a *transparent* substrate is used (*col. 11, lines 11 – 16*) or the heat insulating layer side. I.e. the heat insulating layer must be transparent to allow the laser to be applied from that direction.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Machida as applied above, and further in view of Licht (U.S. Patent No. 5,146,361).

Machida is relied upon as described above.

Machida fails to disclose a laminate comprising a plurality of recording and underlayers meeting applicants' claimed structural limitations, though the Examiner notes that Machida teaches thickness values meeting applicants' claimed limitations for

both the individual garnet ferrite layers and the combined garnet ferrite + underlayer structures (*col. 6, lines 6 – 10; col. 8, lines 32 – 35; and col. 10, lines 21 – 25*).

However, Licht teaches that when forming thick garnet ferrite layers in magneto-optical applications, cracking and thermal stresses can be avoided by using a laminated structure comprising alternating magneto-optic layers wherein the relative expansion coefficients are controlled to be similar to the adjacent layers (*col. 1, lines 23 – 58; col. 3, lines 12 – 23 and Figures*). While Licht utilizes alternating garnet-garnet layers, the Examiner deems that one of ordinary skill in the art would readily recognize the benefits could be achieved using the Machida garnet-spinel ferrite structures.

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Machida to use alternating thin layers of garnet and spinel ferrite as taught by Licht since such a structure allows the formation of thick magneto-optic layers with reduced occurrence of cracking and thermal stresses.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Bernatz, PhD
Primary Examiner

August 27, 2004